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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

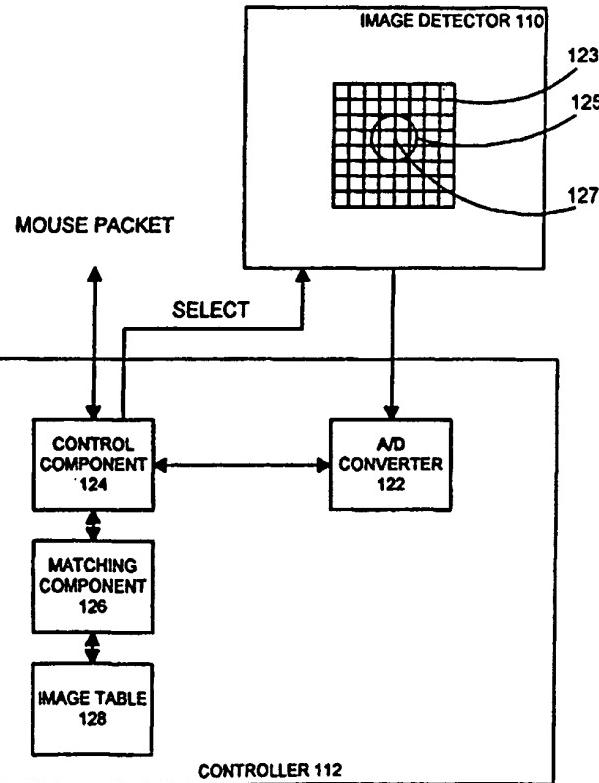
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(54) Title: IMAGE SENSING OPERATOR INPUT DEVICE

## (57) Abstract

A computer input device (42) detects images on a surface (116). The computer input device (42) generates input information indicative of a change event when the device (42) switches from reading one predetermined pattern to reading another predetermined pattern. The present invention can also be directed to a method of using the input device (42) or printable medium with the predetermined patterns disposed thereon.



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# INTERNATIONAL SEARCH REPORT

In. National Application No
PCT/US 99/30507

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>
IPC 7 G06K11/08 G06K11/18 G06F3/033 G06K11/20

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G06K G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, IBM-TDB

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 94 10652 A (MAK STEPHEN M) 11 May 1994 (1994-05-11)</p> <p>the whole document</p> <p>---</p>	1-6, 10-13, 16-28, 35-45
X	<p>"VARIABLE GRID PATTERN FOR OPTICAL MOUSE CONTACT SURFACES" IBM TECHNICAL DISCLOSURE BULLETIN, vol. 31, no. 8, January 1989 (1989-01), pages 237-240, XP000047012 Armonk, NY, US</p> <p>the whole document</p> <p>---</p> <p>-/-</p>	1-6, 10, 12, 17-28, 37, 39

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the international search

17 July 2000

Date of mailing of the international search report

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**INTERNATIONAL SEARCH REPORT**

International Application No

PCT/US 99/30507

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	"PROGRAMMABLE LIQUID CRYSTAL DISPLAY MOUSE PADS" IBM TECHNICAL DISCLOSURE BULLETIN, vol. 32, no. 3B, August 1989 (1989-08), pages 211-213, XP000029875 Armonk, NY, US the whole document ---	1
A	DE 295 15 871 U (TOP DISPLAY BERATUNGS UND PROD) 16 November 1995 (1995-11-16) page 4, paragraph 3 ---	1,9
X	US 5 848 231 A (BORZA MICHAEL A ET AL) 8 December 1998 (1998-12-08)	40
A	the whole document ---	14
X	GB 2 312 040 A (XEROX CORP) 15 October 1997 (1997-10-15)	40
A	page 3, last paragraph -page 4, last paragraph ---	14
X	US 4 804 949 A (FAULKERSON JAMES L) 14 February 1989 (1989-02-14) abstract column 7, line 21 - line 26 column 7, line 49 - line 53 figures 9A,9B ---	30-34
A	US 4 961 138 A (GORNIAK ANDREW M) 2 October 1990 (1990-10-02) abstract column 6, line 42 - line 47 ---	30-34
A	US 5 729 251 A (NAKASHIMA TADASHI) 17 March 1998 (1998-03-17) column 5, line 5 -column 6, line 33 column 16, paragraph 1 column 20, line 38 - line 41 column 21, line 48 - line 52 column 47, line 40 - line 43 ---	30,41-45
A	US 4 797 544 A (FIGUEROA JOHN A ET AL) 10 January 1989 (1989-01-10) abstract column 6, line 20 - line 23 ----	30-34

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 99/30507

### Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-8,10-12,16-29,35-37,39

A computer input system (and corresponding method) for providing input information to a computer, the system comprising a computer input device and first and second patterns disposed on a surface, the patterns being respectively adapted, in combination with a controller coupled to a pattern detector, to provide respectively either relative position information indicative of relative movement of the input device or absolute position information indicative of an absolute position of the input device.

2. Claim : 9

A computer input device for providing input information to a computer comprising a first pattern disposed on a first side of a substrate and a second pattern disposed on a second, different side of the substrate.

3. Claims: 13-15,38,40

A computer input system (and corresponding method) for providing input information to a computer, the system comprising a computer input device and first and second patterns disposed on a surface in which the computer input device issues a command to an application running on the computer based on the patterns, the command being indicative of a log on command and user authentication information.

4. Claims: 30-34, 41-45

A data structure passed from a computer pointing device to a computer (and corresponding input device), the data structure comprising three data portions indicative respectively of movement of the pointing device relative to a surface, of actuation of an actuation button and of a predetermined image detected on the surface.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 99/30507

Patent document cited in search report	Publication date	Patent family member(s)			Publication date
WO 9410652	A	11-05-1994	US	5420943 A	30-05-1995
DE 29515871	U	16-11-1995		NONE	
US 5848231	A	08-12-1998	CA	2193041 A	13-08-1997
			CA	2197409 A	13-08-1997
			US	5859420 A	12-01-1999
			US	5991431 A	23-11-1999
GB 2312040	A	15-10-1997		NONE	
US 4804949	A	14-02-1989		NONE	
US 4961138	A	02-10-1990	AU	613637 B	08-08-1991
			AU	1727988 A	02-12-1988
			CA	1324424 A	16-11-1993
			DE	3882370 A	19-08-1993
			DE	3882370 T	24-02-1994
			EP	0362255 A	11-04-1990
			IN	169831 A	28-12-1991
			JP	2503964 T	15-11-1990
			WO	8808565 A	03-11-1988
US 5729251	A	17-03-1998	JP	3006448 B	07-02-2000
			JP	8221180 A	30-08-1996
US 4797544	A	10-01-1989	AU	593934 B	22-02-1990
			AU	7753387 A	10-02-1988
			DE	3785440 A	19-05-1993
			DE	3785440 T	29-07-1993
			EP	0277964 A	17-08-1988
			JP	1500553 T	23-02-1989
			JP	4006150 B	04-02-1992
			WO	8800712 A	28-01-1988